



SURFACE VEHICLE STANDARD



J1754-3 AUG2010

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Hose Assemblies, Hydraulic, J517 100R Series Hose - Part 3: Procurement and Ordering Information

RATIONALE

Modify Table 1, add Table 2, and update Figures 1, A1 and B1 to make it compatible with SAE J1754-2.

1. SCOPE

This SAE Standard covers procurement and ordering information for hose assemblies using SAE Standard J517 100R Series hoses and connectors specified in SAE Standard J516 or all parts of ISO 12151 for use in hydraulic systems using petroleum based hydraulic fluids.

NOTE: Working pressure is defined as maximum system pressure.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J343	Test and Test Procedures for SAE 100R Series Hydraulic Hose and Hose Assemblies
SAE J516	Hydraulic Hose Fittings
SAE J517	Hydraulic Hose
SAE J846	Coding Systems for Identification of Fluid Conductors and Connectors
SAE J1754-1	Hose Assemblies, Rubber, Hydraulic, Steel Wire Reinforced - Part 1: Procurement Document
SAE J1754-2	Hose Assemblies, Rubber, Hydraulic, Steel Wire Reinforced - Part 2: Ordering Information

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http://www.sae.org/technical/standards/J1754/3_201008**

2.1.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B 117 Standard Test Method of Salt Spray (Fog) Testing

2.1.3 ISO Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

- ISO 4406 Hydraulic fluid power—Fluids—Method of coding level of contamination by solid particles
- ISO 12151-1 Connections for hydraulic fluid power and general use—Hose fittings—Part 1: Hose fittings with ISO 8434-3 O-ring face seal ends
- ISO 12151-2 Connections for hydraulic fluid power and general use—Hose fittings—Part 2: Hose fittings with ISO 8434-1 24° cone ends
- ISO 12151-3 Connections for hydraulic fluid power and general use—Hose fittings—Part 3: Hose fittings with ISO 6162 flange ends
- ISO 12151-4 Connections for hydraulic fluid power and general use—Hose fittings—Part 4: Hose fittings with ISO 6149 metric stud ends
- ISO 12151-5 Connections for hydraulic fluid power and general use—Hose fittings—Part 5: Hose fittings with ISO 8434-2 37° flare ends
- ISO 12151-6 Connections for hydraulic fluid power and general use—Hose fittings—Part 6: Hose fittings with ISO 8434-6 60° cone ends

2.2 Related Publications

The following publications are for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

- SAE J1176 External Leakage Classifications for Hydraulic Systems
- SAE J1273 Recommended Practices for Hydraulic Hose Assemblies
- SAE J1405 Optional Test Procedures for Hydraulic Hose Assemblies

2.2.2 ISO Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

- ISO 3448 Industrial liquid lubricants—ISO viscosity classification
- ISO 4397 Fluid power systems and components—Connectors and associated components—Nominal outside diameters of tubes and nominal inside diameters of hoses

3. REQUIREMENTS

3.1 Hose Assembly Construction

Hose used in assemblies shall be per SAE J517. Connectors shall be in accordance with either SAE J516 or ISO 12151 and capable of meeting the performance requirements of this standard.

3.2 Dimensions

Hose shall conform to all the dimensions in SAE J517. Hose concentricity shall be in accordance with SAE J1754-1, Table 11. Connector dimensions shall be per SAE J516 or ISO 12151. Hose assemblies shall conform to the applicable part standard or engineering drawing. Double bent tube (double elbow) assemblies are not recommended and are considered non-standard due to the detrimental effects of twist on the hose.

3.3 Hose Classifications

Hose assemblies shall conform to SAE J1754-1, Table 12, Class C.

3.4 Performance

Hose assemblies shall satisfy the performance requirements in SAE J1754-1 paragraph 4.3.

3.5 Application Factors

See application factors in SAE J1754-1 paragraph 3.5.

3.6 First Time Suppliers

When required by the purchaser, first time suppliers of each hose assembly size may need to supply documentation that products meet the requirements of SAE J1754-1 paragraphs 4.3.1 through 4.3.9.

3.7 Age Control

See age control requirements in SAE J1754-1 paragraph 3.7.

3.8 Marking

See marking requirements in SAE J1754-1 paragraph 3.8.

3.9 Workmanship

Workmanship shall be of the quality necessary to produce hose assemblies free from all defects that could affect proper form, fit and function in service.

3.10 Cleanliness

Hose assemblies shall meet the cleanliness requirement of ISO 4406 Code Number 19/16 with no particle size exceeding 0.8 mm or the cleanliness requirement specified by the purchaser.

3.11 Finish

The external surfaces and threads of carbon steel parts shall be plated or coated with a suitable material that passes a 96 h salt spray test in accordance with ASTM B 117. Any appearance of red rust during the 96 h salt spray test shall be considered failure, except for the following:

- a. All internal fluid passages.
- b. Edges such as hex points, serrations and crests of threads where there may be mechanical deformation of the plating or coating typical of mass-produced parts or shipping effects.
- c. Areas where there is mechanical deformation of the plating or coating caused by crimping, flaring, bending and other post-plate metal forming operations.
- d. Areas where the parts are suspended or affixed in the test chamber where condensate can accumulate.

Parts manufactured to this document shall not be cadmium plated. Hexavalent chromate coatings are not preferred for commercial and industrial usage due to environmental reasons. Internal fluid passages shall be protected from corrosion during storage and shipping. Changes in plating may affect torque and require re-qualification, when applicable.

4. TESTS

Tests are conducted in accordance with SAE J343 unless otherwise specified.

4.1 Responsibility for Tests

See responsibility for tests in SAE J1754-1 paragraph 4.1.

4.2 Classification of Tests

See classification of tests in SAE J1754-1 paragraph 4.2.

4.3 Qualification Tests

See qualification tests in SAE J1754-1 paragraph 4.3.

4.4 Quality Conformance Tests

See quality conformance tests in SAE J1754-1 paragraph 4.4.

5. PRODUCT APPROVAL

See SAE J1754-2 for agreement between purchaser and supplier.

6. PACKAGING

Packaging shall be as specified in the contract or purchase order, or as agreed upon between the purchaser and supplier.

7. ORDERING DATA

The following data shall be required when ordering per this standard:

- a. Title and date of this document.
- b. Applicable design parts standard and/or engineering drawing.
- c. Connector material.
- d. Quantity.
- e. When qualification testing is required per paragraph 3.6 and 4.3.

- f. When performance tests are specified per SAE J1754-1 paragraph 4.4.2.
- g. Type of packaging required.

TABLE 1 - SAE J 517 100R SERIES HOSE CODES

SAE J517 100R Hose ⁽¹⁾	R1AT	R1S	R2AT	R2S	R3	R4	R5	R6	R7	R8	R12	R13	R14A	R14B	R15	R16	R16S	R17	R18	R19
SAE J846 Designation	53	95	54	55	44	45	46	47	48	49	77	78	79	80	90	91	99	93	94	A5
SAE J1754-3 Designation	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	W

1. See SAE J517, Appendix B1 or SAE J846.

TABLE 2 - HOSE COVER TYPE CODES

Standard Synthetic Rubber Cover	Intermediate (Medium Abrasion) Cover	High Abrasion Cover
1	2 ⁽¹⁾	3 ⁽¹⁾

1. Hose cover type material per purchasers approved material specification.

TABLE 3 - HOSE AND CONNECTOR SIZE IDENTIFICATION CODES

SAE HOSE DASH SIZE ⁽¹⁾	02	03	04	05	06	08	10	12	—	16	20	24	32	40
ISO HOSE SIZE ⁽²⁾	3.2	5	6.3	8	10	12.5	16	19	—	25	31.5	38	51	63
LETTER DESIGNATION	C	D	E	F	G	H	J	K	—	N	P	R	T	U

NOTE: Hose size columns line up with the appropriate standard connector end size in Table 3B.

SAE CONNECTOR DASH SIZE ⁽³⁾	CODE	02	03	04	05	06	08	10	12	14	16	20	24	32	40
ISO 12151-1 CONNECTOR SIZE ⁽⁴⁾	S	—	—	6	8	10	12	16	20	—	25	30	38	—	—
ISO 12151-2 CONNECTOR SIZE-L ⁽⁵⁾	L	—	6	8	10	12	15	18	22	—	28	35	42	—	—
ISO 12151-2 CONNECTOR SIZE-S ⁽⁶⁾	S	—	8	10	12	—	16	20	25	—	30	38	—	—	—
ISO 12151-3 CONNECTOR SIZE-L ⁽⁵⁾	L	—	—	—	—	—	13	—	19	—	25	32	38	51	—
ISO 12151-3 CONNECTOR SIZE-S ⁽⁶⁾	S	—	—	—	—	—	13	—	19	—	25	32	38	51	—
ISO 12151-4 CONNECTOR SIZE-L ⁽⁵⁾	L	—	—	M12	M14	M16	M18	M22	M27	—	M33	M42	M48	—	—
ISO 12151-4 CONNECTOR SIZE-S ⁽⁶⁾	S	—	—	M12	M14	M16	M18	M22	M27	—	M33	M42	M48	—	—
ISO 12151-5 CONNECTOR SIZE ⁽⁷⁾	L	—	—	6	8	10	12	16	20	—	25	30	38	50	—
ISO 12151-6 CONNECTOR SIZE ⁽⁷⁾	L	—	6	8	—	10	12	16	20	—	25	30	38	50	—
LETTER DESIGNATION		C	D	E	F	G	H	J	K	M	N	P	R	T	U

- Hose dash size is based on inches, with each dash size equal to 1/16 inch.
- ISO hose size is based on the equivalent SAE J517 inch hose sizes per ISO 4397.
- Connector dash size is based on inch tubing, with each dash size equal to 1/16 inch.
- ISO connector size is based on ISO 12151-1 with S (Heavy duty series) only.
- ISO connector size is based on ISO 12151-2, 3 and 4 with L (Light duty series).
- ISO connector size is based on ISO 12151-2, 3 and 4 with S (Heavy duty series).
- ISO connector size is based on ISO 12151-5 and 6 with L (Light duty series) only.

NOTE: In Appendix B drawing, the end sizes will need to be filled in the blank space, due to the different end sizes in each of the ISO 12151 standards for each letter code. Example: If a 12151-1 end connection with a 13/16-16 UN thread is used, the size and code would be 12 / H.

TABLE 4 - SLEEVE CODES⁽¹⁾

Code	Sleeve Type
A	Steel Flat Armor Guard
B	Steel Round Spring Guard
C	Thermoplastic Sleeve
D	Textile Polyamide Sleeve
E	Fire Sleeve
F	Plastic Flat Armor Guard
W	None
X	See Drawing

1. Full length sleeve over entire hose is assumed on hose assembly. If partial length sleeve is required on hose assembly, place an "X" to see drawing.

TABLE 5 - HOSE CURVATURE ORIENTATION CODES⁽¹⁾

VIEW	P	R	T	U	W
Top					Not
Front					Required

1. Hose curvature orientation to be used when required for ease of assembly.

TABLE 6 - HOSE OPERATING TEMPERATURE RANGE CODES

Code	Temperature Range
A	Same as SAE J517 100R series specification
X	See drawing for hose temperature rating

TABLE 7 - HOSE FITTING COUPLING ATTACHMENT TYPE CODES⁽¹⁾

Code	Coupling Attachment Type
C	Worm gear clamp for use with SAE J1231 beaded ends and SAE 100R3 and 100R4 type hoses
F	Field attachable (screw together)
M	Field attachable (screw together), for assembly with a mandrel and SAE 100R5 type hoses
P	Permanently attached
S	Field attachable (segment clamp)
X	See drawing for hose fitting coupling attachment type

1. Letter codes are per J846 identification coding.

TABLE 8 - ISO 4406 CLEANLINESS REQUIREMENT CODES

Code	Cleanliness Requirement
A	Per SAE J1754-1 Part 1, ISO 4406 cleanliness requirement
B	ISO 4406 code 18/13 with maximum particle size of 0.5 mm in the largest dimension
X	See drawing for cleanliness requirement

7.1 Part Identification Numbers

J1754-3	A	L	1	C	53	24	G	53	14	G	G	P	W	00450	C	000	W	0	A	A	X	DESCRIPTION
																						Place an "X" to see drawing or "W" for no drawing
																						ISO 4406 Cleanliness Code Number (See SAE J1754-3, Table 8)
																						Operating Temperature Range (See SAE J1754-3, Table 6)
																						SAE 100R Series Hose - Default to "0"
																						Hose Curvature Orientation (See SAE J1754-3, Table 5)
																						Fitting Displacement Angle (See SAE J1754-3, Appendix A or B)
																						Fitting Material Code - Default to "C" (See SAE J846, Table 10)
																						Hose Assembly Overall Length in mm
																						Sleeve Code (See SAE J1754-3, Table 4)
																						Coupling Attachment Type (See SAE J1754-3, Table 7)
																						Hose Dash Size (See SAE J1754-3, Table 3)
																						Second End Connection Size (See SAE J1754-3, Table 3)
																						Second End Connection Shape (See SAE J846, Table 7)
																						Second End Connection Description (See SAE J846, Table 6B)
																						First End Connection Size (See SAE J1754-3, Table 3)
																						First End Connection Shape (See SAE J846, Table 7)
																						First End Connection Description (See SAE J846, Table 6B)
																						Hose Class - Default to "C" (See SAE J1754-1, Table 12)
																						Hose Cover Type (See SAE J1754-3, Table 2)
																						SAE J1754-3 Hose Designation (See SAE J1754-3, Table 1)
																						SAE or ISO Nomenclature (See SAE J1754-3, Appendix A or B)
																						Standard Number

Example of Hose Assembly Part Number: J1754-3AL1C5324G5314GGPW00450C000W0AAX

- NOTE 1: "X" to be used for identifying special conditions that require a drawing.
- NOTE 2: "W" to be used for identifying all letters not required in the coding identification.
- NOTE 3: "0" to be used for identifying all numbers not required in the coding identification.
- NOTE 4: The Hose Class "C" and the SAE 100R Series Hose "0" defaults are used to ensure the SAE J1754-3 part number includes the same number of fields as the SAE J1754-2 part number.

FIGURE 1 - EXAMPLE OF HOSE ASSEMBLY PART NUMBER

8. NOTES

8.1 Marginal Indicia

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PREPARED BY THE SAE FLUID CONDUCTORS AND CONNECTORS TECHNICAL STEERING COMMITTEE C2—
HYDRAULIC HOSE AND HOSE FITTINGS

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